able cause of extermination of these people. He has spent four summers on the ground.

A second paper, read by Bruce Fink, was an ecologic study of the swamp vegetation of northern Minnesota. *Marchantia*, *Sphagnum*, the conifers, the heaths and the orchids were especially considered. No less than thirteen species of orchids collected in these swamps were exhibited, and it was incidentally stated that fourteen species have been collected within ten miles of the University at Fayette, Iowa.

SCIENCE CLUB OF THE UNIVERSITY OF WISCONSIN.

The regular monthly meeting of the club was held on March 1st, at 7:30 P. M., President E. A. Birge presiding. The program of the evening consisted of an address by Professor Ira Remsen, of Johns Hopkins University, on the subject, 'The Outlook in Chemistry.' The speaker emphasized the importance of the researches of such men as Cavendish, Scheele, Priestley, Lavoisier, Berzelius, Liebig and Wöhler. He characterized the work of Lavoisier as revolutionary, and stated that since his time such revolutions have not marked the progress of chemistry. The advance of chemistry, and of other sciences as well, was spoken of as taking place in waves. After the important, fundamental work at the close of the eighteenth and the beginning of the nineteenth century came the activity in organic chemistry, while at present a large amount of energy is directed to physical chemistry in particular. After mentioning some of the triumphs of synthetic work in organic chemistry, Professor Remsen expressed the opinion that a long time would still have to elapse before all the various products of organic beings could be prepared in the laboratory. An audience of about five hundred persons listened to the lecture, which abounded in food for thought interspersed with appropriate anecdotes and witticisms.

Louis Kahlenberg.

THE ELISHA MITCHELL SCIENTIFIC SOCIETY.

At the 133d meeting of the Society, on March 12th, in the Chemical Lecture Room of the University of North Carolina, the following papers were read:

'A Marsupial Track in the Triassic,' Professor Collier Cobb (by title).

'A New and True Antidote for Carbolic Acid,' Professor E. V. Howell.

'Yellow Fever and Mosquitoes,' Professor R. H. Whitehead.

'The World's Production of Iron and Steel,' Professor Chas. Baskerville.

Chas. Baskerville,
Secretary.

DISCUSSION AND CORRESPONDENCE.

THE DATE OF RAFINESQUE'S DEATH.

Editor of Science: In looking over some back numbers of Science quite a year old, I have happened upon the interesting letters between Rafinesque and Professor Wagner as given by Mr. T. L. Montgomery in Science for March 23, 1900. I do not know how I came to miss this item of so long ago, else this note would have been sent you in earlier reply.

The date of Rafinesque's death is correctly given by me in my 'Life and Writings of Rafinesque' as September 18, 1840. I am aware and at the time was aware of the date September 18, 1842, as cited by Mr. Montgomery. I also am aware that all the dates he cites from the various authorities he names are incorrect and all started from the same original error. Evidently an overlooked typographical error in the original publication was the cause.

If Mr. Montgomery had looked carefully at the certified copy of Rafinesque's will, which forms the end of my volume, he would have noted that on November 16, 1840, the signature was attested as being that of Rafinesque by two persons, James Henry Horn and Sam Hood; that on November 28, 1840, James Mease, as executor, was duly sworn for that office and each of the above facts dated in November, 1840. Of course it is hardly necessary to say that wills are not probated two years before a man dies.

The date 1842 is often found in biographical notices of Rafinesque, but all seem to originate in the error of the first notice. I have always imagined that date to be a typographical error. My authority for 1840, as the year, is the will

of Rafinesque probated in November of that year.

R. ELLSWORTH CALL.

BROOKLYN, N. Y., March 14, 1901.

LUNAR HALO.

TO THE EDITOR OF SCIENCE: On February 25, 1901, there was visible in this locality a lunar halo of rather peculiar form. After vain attempts to find an explanation of it the writer asks the privilege of an appeal to the readers of SCIENCE. This phenomenon consisted of an elliptical ring around the moon with axes apparently about six degrees and nine degrees respectively. The principal axis of the ellipse was vertical while the terminator of light on the moon's surface made an angle of about 45 degrees with the horizon. The moon was about half way down in the southwest and half full. A southeast breeze was blowing and very thin fleecy clouds could be seen passing over the face of the moon. The ring persisted for fifteen minutes or more.

The peculiar orientation of the terminator and major axis is the difficult part to explain. One might expect an elliptical though perhaps ill-defined ring from an elongated source of light, but why should the major axis be inclined to the terminator?

C. M. BROOMALL.

MEDIA, PA., March 23, 1901.

SHORTER ARTICLES.

THE LARGEST KNOWN DINOSAUR.

THE Field Columbian Museum paleontological expedition of the past summer was fortunate in securing a number of Dinosaur bones belonging to an animal unique both in size and in proportions. These bones consist of a femur, a humerus, a coracoid, the sacrum, an ilium, a series of seven presacral vertebræ, two caudal vertebræ, and a number of ribs. Part of this collection has been placed on exhibition and the remainder will follow from time to time as the work of preparation proceeds.

The most striking characteristic of this animal, so far developed, is the relative length of the front and hind legs. While the humerus of *Brontosaurus excelsus* Marsh is a little more than two-thirds as long as the femur, the humerus of the individual in question is decidedly the longer bone of the two.

The femur is a stout bone with expanded condyles and a head not constricted from the shaft. The specimen is somewhat crushed antero-posteriorly, but otherwise in a fine state of preservation. Its greatest length parallel to the axis of the shaft is 80 inches (2,003 m.), which is six inches longer than the femur of Marsh's *Atlantosaurus*. The humerus is broad at the proximal end, but unusually slender in the shaft. It has suffered somewhat from weathering, so that the entire surface of the distal end has flaked away, leaving a firm chalcedony core. In this condition its length is equal to that of the femur; with the articular end complete it would probably exceed it by two or more inches. Its present length is greater by 23 inches than the longest humerus hitherto known to science.

The coracoid is broad and straight at the scapular articulation, but less massive than that of *Brontosaurus*. The sacrum is made up of four coossified vertebræ, having small lateral cavities in the centra. A complete rib, presumably from about the sixth presacral vertebræ, measures more than nine feet in length. Some of the thoracic ribs have a secondary tubercle, and also a foramen leading to a cavity in the shaft. However, these may not prove to be constant characteristics.

The similarity of the femur to that of *Atlantosaurus*, together with the presence of but four vertebræ in the sacrum, suggests that this animal may belong to that group. The writer does not feel justified in creating a new genus until the material shall have been sufficiently worked out to make an accurate determination possible. However, the evidence at hand is sufficent to show that we have here to do with an animal which differs radically from any well-known Dinosaur. The extraordinary length of the humerus, together with the size of the coracoid, suggests an animal whose shoulders would rise high above the pelvic region, giving the body something of a giraffe-like proportion. The relatively smaller size of the anterior caudal vertebræ indicates a lesser development of the tail than is common among the sauropod